



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,698	03/05/2002	Brian N. Ripley	100202181-1	7441

7590 02/28/2005
HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER	
INOA, MIDYS	
ART UNIT	PAPER NUMBER
2188	

DATE MAILED: 02/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/091,698

Applicant(s)

BRIAN RIPLEY

Examiner

Midys Inoa

Art Unit

2188

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14, 16-20 and 23-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 16-20 and 23-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 7th, 2005 has been entered.

Response to Arguments

2. Applicant's arguments filed on February 7th, 2005 have been fully considered but they are not persuasive.

Applicant argues that Perego does not teach or suggest "wherein said number of bits potentially varies on a per access basis depending on which variable width memory location of said plurality of variable width memory locations is being accessed".

Perego discloses that configuration logic determines the number of memory banks to be selected and depending on this determination, the device width is selected. Therefore, the memory width can be changed if the configuration is changed (Page 4, paragraph 0047). The memory width depends on the memory bank configuration and being that the memory has variable widths, the number of widths accessed depends of the current width of the memory location accessed.

Although Applicant maintains that the width configuration of Perego is done at the time of manufacture, Perego discloses configuring the width of the memory depending on read or

write accesses. Therefore, it is clear that the configuration process can occur after manufacture (see Page 3, paragraphs 0039-0043).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-14, 16-20, and 23-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Perego et al. (204/0019756 A1).

Regarding Claim 1, Perego et al. discloses a variable width memory system (300) comprising a bus for communicating information (Figure 6A and 6B, Signal lines 645 and 650); a plurality of variable width memory locations coupled to said bus, said variable width memory locations having various bit widths to store information (PB0-PB7, Figure 3 and Page 2 paragraph 0031- Page 3 paragraph 034), wherein said plurality of variable width memory locations receive a number of bits corresponding to the width of the variable memory locations (bits received to fill a memory location is dependent on the width since the width specifies the number of bits that a line can take before it is full); and a controller coupled to said bus (Figures 6A and 6B, 605), said controller directs access to said plurality of variable width memory locations. Being that the memory has variable widths, the number of widths accessed depends of the current width of the memory location accessed. Configuration logic 310 determines which of the memory banks are selected through the acceptance of data bit signals (page 4, paragraph

Art Unit: 2188

0044-0048); the memory width is dependent on the configuration determined. Since configuration logic has the ability to change the current configuration of the system, the memory width from one access to the next can be different if the configuration has changed. Thus, the number of bits accessed can vary on a per access basis if the configuration and the width are different from one access to the next.

Regarding Claim 2, Perego discloses variable width memory locations included on a single memory substrate (see Figure 3).

Regarding Claim 3, the memory of Perego's can be implemented as a RAM, especially since it has similar components and behaves similarly to the RAM disclosed in Figure 2.

Regarding Claims 4-5, the memory locations of Perego have individual addresses and therefore, are identified by unique internal identifiers. The addresses are used by the controller in making access requests. Additionally, such addresses can be part of a mapping system used at the time of access implemented in the Row address buffer and refresh counter 225 and the Column address buffer and refresh counter 230 (see paragraph 0011).

Regarding Claim 6, in the system of Perego, two memory locations could have the same width depending on the parameters being used by the configuration logic 310 (paragraphs 0033-0034).

Regarding Claim 7, Perego discloses variably configuring the width of the memory in order to achieve a reduction in processor operations and power usage (paragraph 0031).

Regarding Claim 8 and 14, Perego et al. discloses a variable width memory (300) comprising receiving a register indicator corresponding to a register (Mode register 220); accessing a memory cell (one of memory banks PB0-PB7) based on said register indicator,

Art Unit: 2188

wherein said memory cell is allocated a storage size correlating to the bit capacity of said register (Paragraph 0012); and transferring information between said memory cell and another component (controller 605), wherein said information includes the same number of bits as said bit capacity. Being that the memory has variable widths, the number of widths accessed depends of the current width of the memory location accessed. Configuration logic 310 determines which of the memory banks are selected through the acceptance of data bit signals (page 4, paragraph 0044-0048); the memory width is dependent on the configuration determined. Since configuration logic has the ability to change the current configuration of the system, the memory width from one access to the next can be different if the configuration has changed. Thus, the number of bits accessed can vary on a per access basis if the configuration and the width are different from one access to the next.

Regarding Claims 9-10, the indicator in register 220 is dependent on a command received by control logic 215 from processor 605 (Paragraph 0008). In this case, the command that the control logic 215 receives is a processing criteria associated with a processor.

Regarding Claim 11, information is often transferred in the form of packets; therefore, such information being transferred to and from the memory could be in the form of a packet; where packets are a group of bits or bytes of information.

Regarding Claim 12, the information being transferred to and from the memory also includes information such as column access enable, row access enable, and write commands. These commands are associated with certain fields in the memory that perform certain functions for completing such commands (see Figure 3).

Regarding Claim 13, the information being transferred that is associated with certain fields is sequentially received and taken in by the command decoder 210 within the memory 300 (see Figure 3).

Regarding Claim 20, Perego et al. discloses a variable memory width assignment method (paragraphs 0031-0034) comprising analyzing a data block configuration specification (from mode register 220); identifying bits in a portion of said block of data, wherein said portion corresponds to information grouped in an arrangement that facilitates reduction of processing instructions; and assigning a memory location width equal to said number of bits in said portion of said block of data (paragraphs 0012 and 0033-0034), wherein said data block is arranged in accordance with a communication packet configuration specification. Since information is often transferred in the form of packets; data blocks being transferred to and from the memory could be in the form of a packet; where a packet can be a group of bits or bytes of information. Therefore, in assigning the width of a memory location, the size of a packet is also being configured. Being that the memory has variable widths, the number of widths accessed depends of the current width of the memory location accessed. Configuration logic 310 determines which of the memory banks are selected through the acceptance of data bit signals (page 4, paragraph 0044-0048); the memory width is dependent on the configuration determined. Since configuration logic has the ability to change the current configuration of the system, the memory width from one access to the next can be different if the configuration has changed. Thus, the number of bits accessed can vary on a per access basis if the configuration and the width are different from one access to the next.

Regarding Claims 16-18, as in all memories, the variable width memory of Perego et al. has many memory locations uniquely identified by memory addresses, which could be known as external identifiers.

Regarding Claim 19, Perego et al. discloses a variable width memory system, which inherently arranges the width bits in a contiguous manner in order to provide easier access.

Regarding Claim 23, Perego et al. discloses a variable width memory assignment system (300) comprising a means for communicating memory location identifiers (addresses communicated through Signal lines 645 and 650 and inputted into the memory system through I/O buffer 325); a means for storing information in a uniquely identifiable different width memory locations corresponding to said memory location identifiers (PB0-PB7, Figure 3 and Page 2 paragraph 0031- Page 3 paragraph 034), wherein said means for storing said information returns a number of bits equal to the width of one of said uniquely identifiable different width memory locations in response to a read request (read data is returned to data control circuit 315 which then routes data to the I/O buffer so that it may be provided to the requestor, Figure 3, Page 3 paragraph 0034); and a means for managing a connection with said uniquely identifiable different width memory locations (data control circuit 315, Figure 3), wherein said means for managing said connection supervises writing and reading of information to and from said uniquely identifiable different width memory location. Being that the memory has variable widths, the number of widths accessed depends of the current width of the memory location accessed. Configuration logic 310 determines which of the memory banks are selected through the acceptance of data bit signals (page 4, paragraph 0044-0048); the memory width is dependent on the configuration determined. Since configuration logic has the ability to change the current

Art Unit: 2188

configuration of the system, the memory width from one access to the next can be different if the configuration has changed. Thus, the number of bits accessed can vary on a per access basis if the configuration and the width are different from one access to the next.

Regarding Claim 24, Perego et al. discloses a memory assignment system (300) wherein said means for managing said connection (315) includes a means for tracking a correspondence (data routing logic, Page 3, paragraph 0034) between said uniquely identifiable variable widths memory (305) and register identifiers (320).

Regarding Claim 25, Perego et al. discloses a variable width memory assignment system (300) wherein said register identifiers (320) are provided by a means for processing said information (Page 3, paragraph 0039).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Midys Inoa whose telephone number is (571) 272-4207. The examiner can normally be reached on M-F 7:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on (571) 272-4210. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2188

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

February 22, 2005



Midys Inoa

Examiner

Art Unit 2188

MI



Pierre H. Vital

Primary Examiner

Art Unit 2188